

HT4020 - HT4022

TRMS AMPEROMETRIC CLAMP 400A AC WITH POWER MEASUREMENT

The HT4020 and HT4022 professional clamp meters perform TRMS AC Current measurement up to 400A, AC/DC voltage, frequency, resistance, continuity test, active, reactive and apparent power, power factor ($\cos\phi$) and energy measurements on single phase and/or three-phase balanced systems more than the phase sequence indication with 1-wire method. The HT4022 also performs the absolute/percentage voltage/current harmonics with the calculation of THD%. Each meter is designed in compliance with IEC/EN61010-1 in CAT III 600V and is an ideal solution to troubleshoot typical industrial equipments such as non-linear motors controlled frequency, networks of PC, etc.

FUNCTIONS	HT4020	HT4022
DC/AC TRMS voltage	•	•
AC TRMS current	•	•
Resistance and continuity test	•	•
Frequency with test leads and clamp	•	•
Active, reactive, apparent power	•	•
Active, reactive, apparent energy	•	•
Power factor ($\cos\phi$)	•	•
V/I harmonics up to 25 th order and THD%		•
Phase sequence indication with 1-wire	•	•
Autorange	•	•
Data HOLD	•	•
MAX/MIN/AVG/PEAK	•	•
Backlight	•	•
AutoPowerOFF	•	•

TECHNICAL SPECIFICATIONS	HT4020	HT4022
DC Voltage		
Measurement range:	0.1V ÷ 600V	0.1V ÷ 600V
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
AC TRMS Voltage		
Measurement range:	1.6V ÷ 600V	1.6V ÷ 600V
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
AC TRMS Current		
Measurement range:	0.1A ÷ 400A	0.1A ÷ 400A
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
AC active, reactive, apparent power [kW, kVAR, kVA]		
Measurement range:	0.01 ÷ 1000	0.01 ÷ 1000
Basic accuracy:	±(3.5%rdg + 3dgt)	±(3.5%rdg + 3dgt)
Power factor $\cos\phi$		
Measurement range:	0.20 ÷ 1.00	0.20 ÷ 1.00
Basic accuracy:	±3°	±3°
Voltage/current harmonics		
Harmonic order:		1 ÷ 25
Basic accuracy:		±(10%rdg + 5dgt)
Resistance and continuity test		
Measurement range:	0.1Ω ÷ 2kΩ	0.1Ω ÷ 2kΩ
Basic accuracy:	±(1.0%rdg + 5dgt)	±(1.0%rdg + 5dgt)
Buzzer	<40Ω	<40Ω
Frequency with clamp and test leads		
Measurement range:	40Hz ÷ 400Hz	40Hz ÷ 400Hz
Basic accuracy:	±(1.5%rdg + 1dgt)	±(1.5%rdg + 1dgt)
Phase sequence indication with 1-wire method		
Voltage range:	50V ÷ 600V	50V ÷ 600V
Frequency range:	40Hz ÷ 69Hz	40Hz ÷ 69Hz

GENERAL SPECIFICATIONS

Display:	LCD 4 dgt, 10000 points
Conversion:	TRMS, 64 samples in 20ms
Power supply:	2x1.5V batteries type AAA LR03
AutoPowerOFF:	after 5 min of idleness
Safety:	IEC/EN 61010-1
Category of measurement:	CAT III 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Max diameter of clamped cable:	30mm
Dimensions (LxWxH):	205x64x39mm
Weight (included batteries):	280g

ACCESSORIES

Standard	Code
Couple of test leads	4413-2
Couple of alligator clips	
Carrying bag	B80
Rubber clamp protection	
Batteries	
ISO9000 calibration certificate	
User manual	





1. ELECTRICAL SPECIFICATIONS

Accuracy is given as \pm (% of reading + no. of least significant digits) at $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$, with relative humidity Less than 80% R.H.

DC VOLTAGE

Range	Resolution	Accuracy	Overload Protection
1.6 ÷ 599.9V	0.1V	$\pm(1.0\%rdg+3dgt)$	600V RMS

Input Impedance: $1\text{M}\Omega$

AC VOLTAGE (TRMS)

Range	Resolution	Accuracy		Overload Protection
		40 ~ 200Hz	200 ~ 400Hz	
1.6 ÷ 599.9V	0.1V	$\pm(1.0\%rdg+3dgt)$	$\pm(5.0\%rdg+3dgt)$	600V RMS

Input Impedance: $1\text{M}\Omega$; Max crest factor: 1.5

AC/DC VOLTAGE : MAX / MIN / AVG/ PEAK MEASUREMENT

Function	Range	Resolution	Accuracy	Response time	Overload Protection
MAX/MIN/AVG	10.0 ÷ 599.9V	0.1V	$\pm(5.0\%rdg+10dgt)$	500ms	600V RMS
PICCO	10 ÷ 850V	1V	$\pm(5.0\%rdg+10dgt)$	1ms	600V RMS

AC CURRENT (TRMS)

Range	Resolution	Accuracy		Overload Protection
		40 ~ 200Hz	200 ~ 400Hz	
0.0 ÷ 399.9A	0.1A	$\pm(1.0\%rdg+3dgt)$	$\pm(5.0\%rdg+3dgt)$	600A RMS

Max crest factor: 2

AC CURRENT:PEAK MEASUREMENT

Function	Range	Resolution	Accuracy	Response time	Overload Protection
MAX/MIN/AVG	10.0 ÷ 399.9A	0.1A	$\pm(5.0\%rdg+10dgt)$	500ms	600A RMS
PEAK	10 ÷ 800A	1A	$\pm(5.0\%rdg+10dgt)$	15ms	600A RMS

RESISTANCE

Range	Resolution	Accuracy	Overload Protection
0.0 ÷ 499.9 Ω	0.1 Ω	$\pm(1.0\%rdg+5dgt)$	600V RMS
500 ÷ 999 Ω	1 Ω		
1000 ÷ 1999 Ω	3 Ω		

FREQUENCY (TEST LEADS / CLAMP'S JAWS)

Range	Resolution	Accuracy	Overload Protection
40 ÷ 399.9Hz	0.1Hz	$\pm(5.0\%rdg+1dgt)$	600V/A RMS

Voltage range: 0.5 ÷ 600V (test leads)

Current range: 0.5 ÷ 400A (clamp's jaws)



HT4022

Rel. 1.03 of 06/06/08

AC TRMS clamp meter 400A with power/harmonics measurements Page 2 of 3

ACTIVE POWER, REACTIVE POWER, APPARENT POWER

Range	Resolution [kW], [kVAR],[kVA]	Accuracy
0.00 ÷ 99.99	0.01	±(3.5%rdg+3dgt)
100 ÷ 999.9	0.1	

Accuracy defined for: sine waves, voltage 100V-600V, current ≥ 1A, Freq. 50-60Hz, Power Factor: 0.8i ÷ 0.8c

POWER FACTOR

Range	Resolution	Accuracy
0.20 ÷ 1.00	0.01	±3°

Current range for Power Factor measurement ≥ 2A

VOLTAGE & CURRENT HARMONICS

Harmonic Order	Resolution [V], [A]	Accuracy
1 ÷ 15	0.1	±(10.0%rdg+5dgt)
16 ÷ 25		±(15.0%rdg+5dgt)

PHASE ROTATION TEST AND PHASE COINCIDENCE TEST*

Range	Input Impedance	Overload Protection
50 ÷ 600V	1MΩ	600V RMS

Frequency range: 40 ÷ 69Hz

(*): Measure executed in following normally conditions: instrument handle hard, standard shoes, standard floors, etc.

AUDIBLE CONTINUITY TEST

Range	Accuracy	Test Voltage
Continuity	Built-in buzzer sounds when reading is below approx. 40Ω, the buzzer turns off when reading is greater than 40Ω.	<1.5VDC

Overload protection: 600V RMS





2. GENERAL SPECIFICATIONS

Display:

- The liquid crystal display (LCD) is 4 digits with maximum reading 9999 counts.
- Backlight function.
- Automatic polarity indication.


Function:

- DCV, ACV, ACA, OHM, W, W3, HV, HA, PHASE SEQ, Audible continuity tests.

Measuring rate:

- 64 samples/period

Low battery indicator:

- The " " appears when the battery voltage drops is low

Operating temperature:

- 5 °C to 40 °C, 0 - 80 % R.H.

Storage temperature:

- -10 °C to 60 °C, 0 - 70 % R.H.

General informations:

- Indoor use
- Altitude up to 2000m
- Pollution degree: 2
- Insulation: class 2 (double insulation)
- Max. diameter conductor size : 30 mm

Power supply:

- 2 x 1.5V IEC R03 AAA carbon-zinc or alkaline type batteries
- AutoPowerOFF function

Dimension:

- 205 (H) x 64 (W) x 39 (L) mm

Weight:

- 280 grams with batteries included.

Applied standards:

- LVD: EN 61010-1 CAT III 600V
- EMC: EN60326

This product conforms to the prescriptions of the European directive on low voltage 2006/95/EEC and to EMC directive 2004/108/EEC